

## REMARKS

Claims 1-21 were previously pending in this patent application. Claims 1-4, 8-11, 14-17, and 21 stand rejected. Claims 5-7, 12-13, and 18-20 are objected to. Herein, Claims 5, 12, and 18 have been cancelled. Moreover, Claims 1, 8, and 14 have been amended. Accordingly, after this Amendment and Response, Claims 1-4, 6-11, 13-17, and 19-21 remain pending in this patent application. Further examination and reconsideration in view of the arguments set forth below is respectfully requested.

### 35 U.S.C. Section 103(a) Rejections

Claims 1, 4, 8, 11, 14, 17 and 21 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Khandros et al., Published U.S. Patent Application No. 2002/0074653 (hereafter Khandros). These rejections are respectfully traversed.

Independent Claim 1 recites:

An integrated circuit package comprising:

a package substrate having a top and a bottom;

a plurality of bypass capacitors coupled to said bottom without a cavity; and

an array of solder balls formed on said bottom, wherein said array of solder balls facilitates surface mounting to a printed circuit board assembly, wherein said solder balls provide sufficient space between said printed circuit board assembly and said bypass capacitors, ***and wherein a height of each solder ball is no greater than approximately 0.5 millimeters.*** (emphasis added)

In the Office Action, it was stated that Claim 5 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 5 recites "wherein a height of each solder ball is approximately 0.5 millimeters" and is dependent solely on Independent Claim 1. Independent Claim 1 has been amended to incorporate the claim language of Claim 5 and additional terms. In particular, the claim limitation "wherein a height of each solder ball is no greater than approximately 0.5 millimeters" has been added to Independent Claim 1. Moreover, Khandros does not teach the invention of Independent Claim 1, as amended. Specifically, Khandros teaches away from making a height of each solder ball no greater than approximately 0.5 millimeters. For example, Khandros describes solder balls whose size is made up to about 40 millimeters or larger to provide space to position the bypass capacitor (having a height as low as 20 millimeters) or whose size is only about 5 to 10 millimeters to provide space for a suitable small bypass capacitor. [Khandros, paragraphs 0056 and 0077]. Therefore, it is respectfully submitted that Independent Claim 1 is patentable over Khandros and is in condition for allowance.

Dependent Claim 4 is dependent on allowable Independent Claim 1, which is allowable over Khandros. Hence, it is respectfully submitted that Dependent Claim 4 is patentable over Khandros for the reasons discussed above.

Continuing, it was further stated that Claim 12 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 12 recites "wherein a height of each solder ball is approximately 0.5 millimeters" and is dependent solely on Independent Claim 8. Independent Claim 8 has been amended to incorporate the claim language of Claim 12 and additional terms. In particular, the claim limitation "wherein a height of each solder ball is no greater than approximately 0.5 millimeters" has been added to Independent Claim 8. With respect to Independent Claim 8, it is respectfully submitted that Independent Claim 8 recites similar limitations as in Independent Claim 1. Therefore, Independent Claim 8 is allowable over Khandros for reasons discussed in connection with Independent Claim 1.

Dependent Claim 11 is dependent on allowable Independent Claim 8, which is allowable over Khandros. Hence, it is respectfully submitted that Dependent Claim 11 is patentable over Khandros for the reasons discussed above.

Furthermore, it was also stated that Claim 18 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 18 recites "wherein a height of each solder ball is approximately 0.5 millimeters" and is dependent solely on Independent Claim 14. Independent Claim 14 has been amended to incorporate the claim language of

Claim 18 and additional terms. In particular, the claim limitation "wherein a height of each solder ball is no greater than approximately 0.5 millimeters" has been added to Independent Claim 14. With respect to Independent Claim 14, it is respectfully submitted that Independent Claim 14 recites similar limitations as in Independent Claim 1. Therefore, Independent Claim 14 is allowable over Khandros for reasons discussed in connection with Independent Claim 1.

Dependent Claims 17 and 21 are dependent on allowable Independent Claim 14, which is allowable over Khandros. Hence, it is respectfully submitted that Dependent Claims 17 and 21 are patentable over Khandros for the reasons discussed above.

Claims 2, 9, and 15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Khandros et al., Published U.S. Patent Application No. 2002/0074653 (hereafter Khandros), in view of Soga, Japanese Patent JP 61-24255 (hereafter Soga). These rejections are respectfully traversed.

Dependent Claims 2, 9 and 15 are dependent on allowable Independent Claims 1, 8, and 14, respectively. As discussed above, Independent Claims 1, 8, and 14 are allowable over Khandros. Moreover, Soga does not disclose that a height of each solder ball is no greater than approximately 0.5 millimeters, as

recited in Independent Claims 1, 8, and 14. Hence, it is respectfully submitted that Dependent Claims 2, 9, and 15 are patentable over Khandros and Soga for the reasons discussed above.

Claims 3, 10, and 16 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Khandros et al., Published U.S. Patent Application No. 2002/0074653 (hereafter Khandros), in view of Cornelius et al., Published U.S. Patent Application No. 2002/0185308 (hereafter Cornelius). These rejections are respectfully traversed.

Dependent Claims 3, 10, and 16 are dependent on allowable Independent Claims 1, 8, and 14, respectively. As discussed above, Independent Claims 1, 8, and 14 are allowable over Khandros. Moreover, Cornelius does not disclose that a height of each solder ball is no greater than approximately 0.5 millimeters, as recited in Independent Claims 1, 8, and 14. Additionally, instead of disclosing a chip die coupled to the package substrate in a flip-chip configuration, Cornelius discloses a chip die coupled to the package substrate in a wire bonding configuration. [Cornelius, paragraph 0002]. Further, Figure 4a of Cornelius only shows a substrate (114) rather than a chip die coupled to the package substrate in a flip-chip configuration. [Cornelius, paragraphs 0029-0030]. Hence, it is

respectfully submitted that Dependent Claims 3, 10, and 16 are patentable over Khandros and Cornelius for the reasons discussed above.

#### ALLOWABLE SUBJECT MATTER

Claims 5-7, 12, 13, and 18-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The claim limitations of Claims 5, 12, and 18 have been incorporated into Independent Claims 1, 8, and 14, respectively. Further, Claims 5, 12, and 18 have been cancelled.

Dependent Claims 6-7, 13, and 19-20 are dependent on Independent Claims 1, 8, and 14. As discussed above, Independent Claims 1, 8, and 14 are allowable. Hence, it is respectfully submitted that Dependent Claims 6-7, 13, and 19-20 are patentable for the reasons discussed above.

### CONCLUSION

It is respectfully submitted that the above amendments, arguments and remarks overcome all rejections and objections. For at least the above-presented reasons, it is respectfully submitted that all remaining claims (Claims 1-4, 6-11, 13-17, and 19-21) are now in condition for allowance.

The Examiner is urged to contact Applicants' undersigned representative if the Examiner believes such action would expedite resolution of the present Application.

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Respectfully submitted,

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